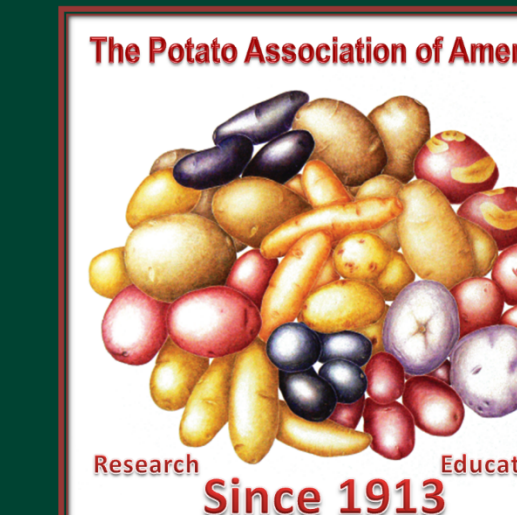


What Linuron Can Do For Potato Production



NDSU EXTENSION SERVICE



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Reason for the Research

Background: Timing of herbicide application can be the difference in having a one-pass weed control system or needing multiple herbicide applications. Linuron can provide beneficial weed control in potato, especially when tank mixed with other herbicides. It can provide control of hard-to-control weeds such as common lambsquarters, red root pigweed, and night shade species. However, aerial applications are not allowed and it does not work well in soils with high clay content or high organic matter. It is advantageous because it may cause less damage to potato plants as they are emerging when compared to other herbicides.

Purpose of the Project: To determine the effects of linuron plus metribuzin or rimsulfuron treatments on crop injury and marketable yield.

What Was Done

Experimental Procedures:

- Location: Ottertail, MN (2014), Inkster, ND (2015), and Park Rapids, MN (2015)
- Cultivar: Russet Burbank or Umatilla Russet
- Treatments:
 - Preemergence (Linuron 12 or 24 oz/a + 0.67 lb/a metribuzin)
 - 50-75% emergence (Linuron 12 or 24 oz/a + 0.67 lb/a metribuzin)
 - 4-6 inch tall plants (Linuron 12 or 24 oz/a + 0.67 lb/a metribuzin or 1.5 oz/a rimsulfuron)
 - 8-10 inch tall plants (Linuron 12 or 24 oz/a + 0.67 lb/a metribuzin)
- Production practices were conducted according to NDSU recommendations.

Measurements

- Crop injury 2 and 4 weeks after treatment
- Harvested and graded yield of the two center rows

Data Analysis

- Proc Mixed model with a Tukey pairwise comparison at $P < 0.1$ with SAS v. 9.3.



Figure 1 . Effect of treatments on Russet Burbank potato in 2014.

We acknowledge and thank NovaSource, RDO, and the NPPGA for supporting this research.

What Was Found

Crop Injury

- Crop injury at 2 weeks after treatment was found at all the postemergence treatments (Figure 2).
- At 4 weeks after treatment the crop injury persisted on the late postemergence treatments. This was expressed as a reduction in canopy.
- Crop injury was observed at 4 days after the emergence treatment, but the chlorotic leaves quickly returned to green when evaluated at 8 days after treatment (see picture below).

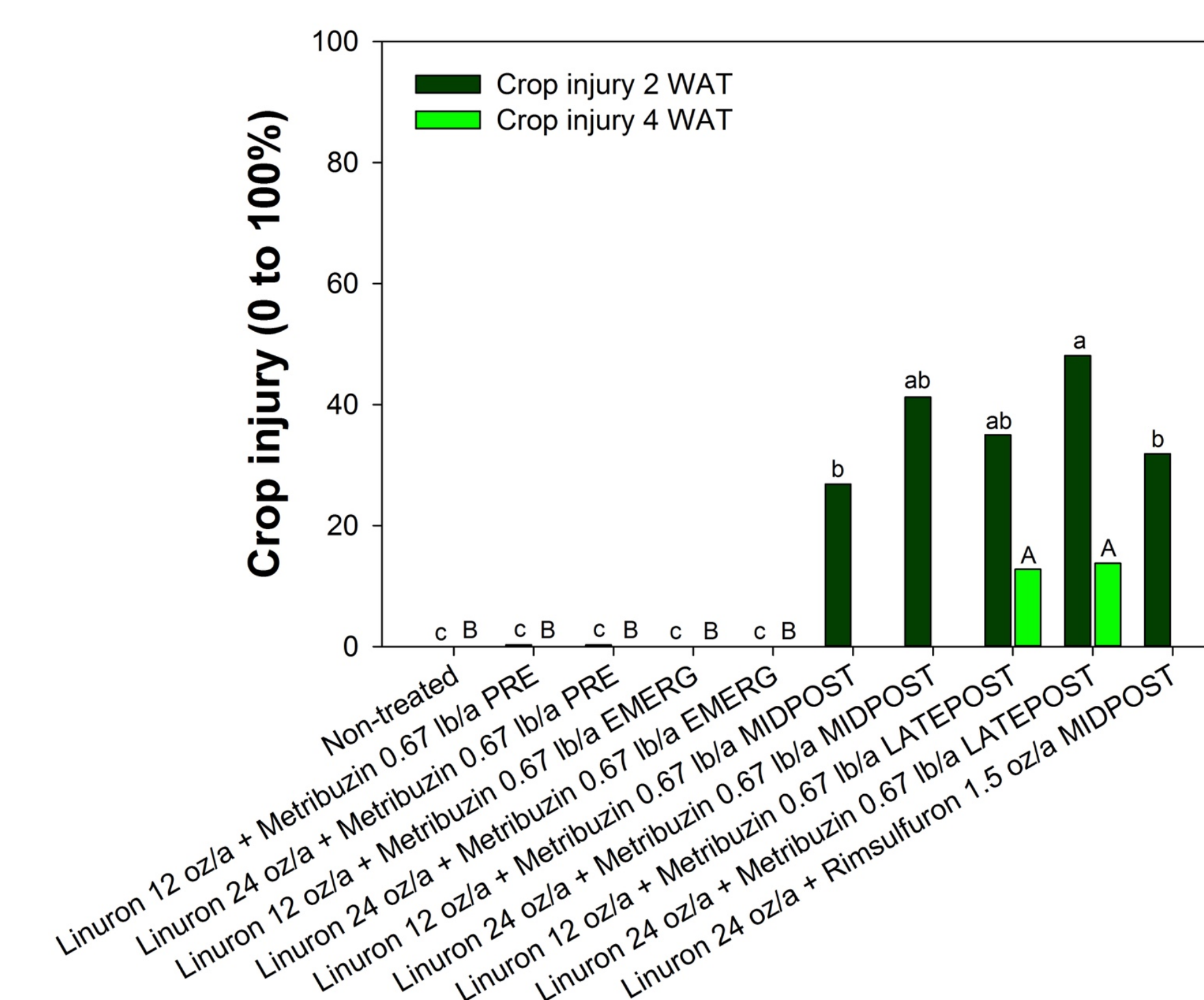


Figure 2. Estimated crop injury (0 to 100%) of Russet Burbank and Umatilla Russet treated with linuron tank mixtures at preemergence (PRE), emergence (EMERG), 4-6 inch (MIDPOST), and 8-10 inch tall plants (LATEPOST). Means followed by the same letter (lower case for 2 weeks after treatment and uppercase for 4 weeks after treatment) are not significantly different according to Tukey pairwise comparison ($P = 0.1$).

Yield

- Total yield was similar at the preemergence, emergence, and 4-6 inch tall plant treatment timings.
- Total yield was reduced when linuron + metribuzin were applied to 8-10 in tall plants.
- Marketable yield was similar to total yield. There was a numerical advantage when 24 oz/a of linuron + 0.67 lb/a metribuzin was applied at emergence.

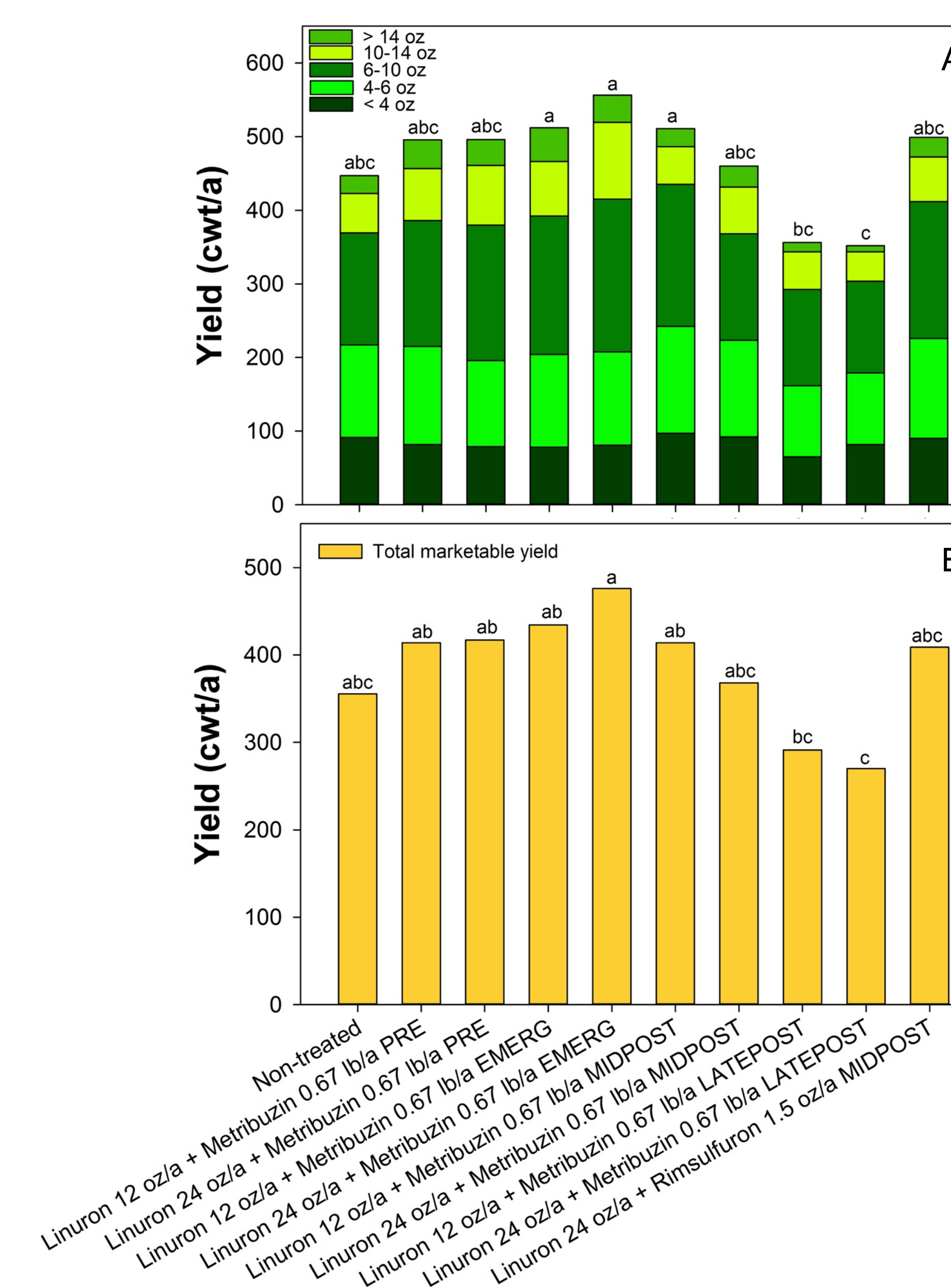


Figure 3. Graded yield (A) represented by the stacked bars and marketable yield (B) of Russet Burbank and Umatilla Russet treated with linuron tank mixtures (described in Figure 2). Total yield means followed by the same letter are not significantly different according to Tukey pairwise comparison ($P = 0.1$).

Take Home Message

- Linuron mixed with metribuzin or rimsulfuron is a good preemergence herbicide option that does not effect potato yield or quality.